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For United States Patent and Trademark Office
Technological Protection Systems for Digitized Copyrighted Works
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Background: On November 2, 2002, President Bush signed into law legislation (The "Technology, Education and Copyright Harmonization Act of 2001" (TEACH Act)) that, among other things requires the U.S. Patent and Trademark Office, in consultation with the Copyright Office, to report to the Congress on ***"technological protection systems that have been implemented, are available for implementation, or are proposed to be developed to protect digitized copyrighted works and prevent infringement."*** *Pursuant to this requirement, the PTO recently published in the Federal Register a request for public comments and notice of hearings on technological protection systems for digitized copyrighted works. Written comments are due to PTO by* ***January 14, 2003****. A hearing is tentatively scheduled for the Washington, DC area, on* ***February 4, 2003****. Based on expressions of public interest, additional hearings may also be scheduled. Requests to testify must be received by January 14, 2003.*

Thank you for considering Macrovision Corporation's input for the upcoming PTO report to Congress. As a leading intellectual property protection and digital rights management technology company, Macrovision is in a unique position in the 'neutral' zone between the hardware community and the content owner community. There is no question that debate over digital rights management ("DRM") and copy protection technologies between these two industry groups and consumer activists is spirited. However, at the end of the day, one must evaluate existing and proposed intellectual property rights management solutions based on not only the effectiveness, security, flexibility, and implementation cost of the technologies, but also on their transparency and ease of use by consumers.

Since 1985, Macrovision has pioneered copy protection and rights management solutions for video, pay-per-view, DVD, consumer and enterprise software and music CDs. We have been working co-operatively with industry groups such as the Copy Protection Technical Working Group (CPTWG), the Broadcast Protection Discussion Group (BPDG), the DVD Copy Control Association (DVD CCA) and the Video Watermarking Companies (VWM) to design solutions to address the intellectual property protection challenges posed in both digital and analog environments. The Digital Millennium Copyright Act effectively demonstrated that positive

government legislation and enforcement actions can effectively balance the diverse interests of consumers, the consumer electronics and PC industry and the copyright (content) industry.

Macrovision (Nasdaq: MVSN) (www.macrovision.com) has copy protected over 3.5 billion VHS videocassettes and, in the last four years, one billion DVDs. Our copy protection technology is embedded in virtually all DVD players and recorders, and in over 85 million digital set-top-boxes, including over 90% of those used in the UK, North America and Japan. We have copy protected over 200 million CD ROMs containing PC games. These statistics and our company's extensive copy protection customer base, which includes all the major Hollywood studios, hardware suppliers to the satellite and cable TV industry, the major PC games publishers and the optical media manufacturing infrastructure, have resulted from a sustained 15-year focus on developing effective copy protection and DRM technologies. DRM technologies comprise various software-based electronic and security solutions that are designed to enable copyright owners to license and market their copyrighted content across a variety of mediums – whether that be physical goods such as CDs and DVDs, wired or wireless electronic transmissions, or the Internet. Copy protection is a critical element of most digital rights management technologies.

In the past few years, the world has changed dramatically from one in which most intellectual property and copyright theft occurred when people would make photocopies or simply shoplift physical items. In today's digital world, we are facing widespread electronic shoplifting. Today's shoplifters can achieve this with PCs in the privacy of their own home, where they are immune from arrest by police and enforcement agencies. In the physical world, many retailers estimate that they lose about 2% of their revenues to shoplifters. In the digital world, the pilferage is far higher. National consumer surveys have revealed that between 10-20% of the population routinely engages in some type of unauthorized video copying – whether using CD burners, videocassette recorders, or file sharing services. The losses in the software and music businesses appear to be far higher. Many surveys have confirmed that a high percentage of teenagers and college students utilize CD burners to copy music albums and also share music files over the Internet with peer-to-peer file sharing services like KaZaA, Limewire, Morpheus, etc. In the past month, 321 Studios, a new company, has attracted considerable attention – and a content owner lawsuit – with their new DVD copying software that is purported to allow consumers to make copies of DVD movies without actually circumventing industry standard encryption technology.

With the advent of mass consumer broadband access, the requirement for enhanced content protection and secure DRM solutions has become paramount if owners of premium content are going to use this medium. The issues surrounding digital content delivery have become more critical – how do we safeguard digital content delivery and access? How do we protect the rights of the content owners once the content has been accessed? How do we enable flexible usage or re-distribution models, such that content owners and their distribution and consumer channels can optimize the advantages offered by the digital age? Without a secure solution, content owners are unlikely to authorise the transmission of their premium content, thereby limiting growth in the digital marketplace.

The solution to these problems is an effective content protection and DRM infrastructure, and a legal structure that protects copyright holders as well as technologists and consumer electronic manufacturers. One of the most dubious phrases used in the current inter-industry debates is that of copying for 'fair use' or non-commercial benefit. If someone makes a copy of a DVD or TV program and puts it on the web, it may well have been done for non-commercial benefit. However, it is unlikely that a rights owner (and the entire supply chain) who may lose tens of thousands of displaced sales as a result, will feel that they have not suffered a significant commercial loss and infringement on their copyright. "Fair Use" is often used as a smokescreen by consumer rights activists to deride copy protection and DRM technologies. These activists often state that they have a "right" to make backup copies once they have purchased the first article. In fact, fair use laws were intended to provide the consumer with a "right" to do what they wanted with the original article, but neither we nor content owners envisioned a fair use application that enabled one to make unlimited additional copies or to electronically transfer a copy of original content to an Internet file sharing service. In the digital world, this "fair use" concept must be redefined in such a way to protect the intellectual property owner. Copy protection and DRM technologies can, in fact, support the fair use concept and can allow time shifting (use the purchased product or program at a later date) and space shifting (use the purchased product or program in one or more playback devices).

Many consumer rights activists have warned that copy protection and DRM technologies will impose an unfair cost burden on all consumers – because hardware and content prices will carry an intellectual property protection surcharge. Fortunately, most DRM and copy protection technologies can be implemented at a cost of pennies for each software unit (CD, DVD, or pay-per-view program) and nickels and dimes for each hardware device. The actual cost of these technologies (including all royalties and implementation costs) is on the order of a small fraction of one percent of the retail prices. This means that the DRM and copy protection costs are well under 10 cents per disc or per program, and in the range of 25 – 50 cents per hardware device. This is considerably under the 1-2% hidden tax that we, as consumers, have historically paid for physical goods – due to the fact that retailers gross up their prices in order to recoup shoplifting losses.

Effective copy protection and DRM technologies actually expand new business opportunities. Many articles written about copyright reform legislation point out that the Hollywood studios were able, in fact, to grow a substantial video business, although they predicted the obliteration of the movie industry once the VCR installed base became significant. Of course, we all know that the VCR actually stimulated the growth of a 'new' $16 billion prerecorded media business. One fact that is often overlooked in this growth story is that the studios had access early on to a fundamental rights management technology – electronic copy protection on videocassettes - which meant they were not at risk to wholesale unauthorized copying. With the introduction of DVDs, a new encryption technology and a new version of Macrovision's copy protection technology helped provide the copy protection security that was required by the studios before they would release their valuable movies on the new optical disc format. Unfortunately, the same

cannot be said for the music industry- which has been without effective copy protection since the advent of the CD – and which last year suffered a decline in revenues due in large part to unauthorized CD copying and Internet file sharing.

Macrovision and other vendors are hard at work developing effective copy protection, rights management and authentication solutions for music CDs that will allow the intellectual property owner to receive proper compensation for his/her works. The music industry recognizes that consumers have historically made copies and compilations of CD albums. A copy-protected and DRM-managed CD can allow this while still adding to the consumers' music experience. A new category of 'multi-session' copy-protected and DRM-managed CDs will provide consumers with new features via computers and the Internet, thus providing additional entertainment information and added value that had not previously been made available on non-copy protected, non-DRM-enabled CDs.

In the video industry, Macrovision is working to establish an effective digital video copyright protection "ecosystem" which included bilateral watermarking solutions that are implemented in both consumer hardware and digital video content. Watermarking has been proposed by the DVD CCA industry trade group as an effective preventer of unauthorized digital recording, as well as one of the few technologies capable of plugging the "analog hole." Macrovision, Digimarc, Hitachi, NEC, Philips, Pioneer and Sony have formed the Video Watermarking (VWM) Companies to offer a best-of-breed solution for digital video applications. The combined engineering talent, intellectual property, product performance, marketing and support infrastructure of our seven companies is unparalleled. The VWM watermarking technology is designed to protect video content on DVDs, videocassettes, cable or satellite transmissions, and the Internet from unauthorized copying to recordable DVDs, DVHS, personal digital video recorders (PVRs) and multimedia personal computers.

In the software industry, Macrovision has been at the forefront of providing copy protection solutions for both consumer and enterprise software. We are the world's leading provider of PC games' copy protection systems and our SafeDisc® technology is routinely used on 70-80% of all PC games' hit titles. Companies like Microsoft, Electronic Arts, Take2 Interactive, and Hasbro use our SafeDisc technology to prevent consumers from copying their game CDs. Other well known software companies like Intuit, Apple, AutoDesk, and MathSoft, use our SafeCast® DRM solution to help them securely distribute their application software and ensure that consumers are in compliance with the license terms of use. Another 2,500 software companies have used our FLEX*lm*® electronic license management software to help them in a corporate environment ensure that the corporate end-users are in compliance with the terms of their licenses and that the actual number of users matches the number authorized in their respective contracts.

(An APPENDIX on Macrovision's protection products and technological initiatives for digitized copyrighted content is attached for further reference).

The video, music and software industries need more secure and more versatile intellectual property safeguards. At Macrovision, we believe that unless there is implementation of broadly adopted technology-based copy protection and DRM solutions, content holders will be reluctant to release premium digital content through the Internet, which is essential for stimulating broadband and the consumer electronics sales. We believe that the private sector should take the lead role, in conjunction with supportive government legislation and follow-through, in proposing and implementing essential copyright areas, as well as managing compliance and enforcement.

This paper has attempted to describe how technology for content protection and DRM can provide for and support consumer friendly, robust, secure, and cost-effective solutions that enable content owners to navigate the digital highway with confidence and optimize the new opportunities offered by the "Broadband Economy."

In closing, I would emphasize three important points for the PTO to consider:

(1) Copyright protection and DRM technologies are essential tools for the U.S. intellectual property and copyright industries – which are the largest and most innovative in the world. They must be nurtured and protected by copyright laws – and that includes outlawing any circumvention devices, techniques, or Internet 'hacks' that might be promoted in the name of "fair use."

(2) Copy protection and DRM technologies are proven, cost effective, and unburdensome to the consumer. The free market economy is doing a good job at sorting out which competing products will win in the marketplace. However, in certain situations, such as video watermarking, where it would be costly to force the hardware manufacturers to implement multiple solutions, industry standards make sense. In these situations, the government needs to recognize that consortiums of companies should be allowed to come together to offer a single solution under fair and non-discriminatory terms.

(3) If industry groups cannot resolve their differences in a timely fashion, the government should be ready, willing, and able to establish standards and, if necessary, select certain technology solutions to promote the adoption and deployment of copy protection and DRM technologies such that the distribution of digital content is more rapidly encouraged..

I would be glad to discuss these points, describe our business in more detail, or answer any questions at the PTO hearing on February 4, 2003. Please let me know if I can assist in any way.

Sincerely yours,

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